Deconstructing Density:

Strategic Dilemmas Confronting the Post-Apartheid City

Ivan Turok

{to be published in Cities, 2011}

Abstract

Public authorities in many countries around the world are seeking to raise urban densities. Residential densification is particularly important in South Africa because of the colonial and apartheid legacy of sprawling, fragmented, racially divided cities. The paper examines the case for densifying central Cape Town and provides a framework to help deconstruct the concept and explore the policy challenges faced. It focuses on the bold aim to treble the area's population within 10 years, and identifies issues where further consideration and public debate are required for how this can be achieved in a way that is desirable, affordable and fair. A key message is the need to understand both the composition of demand for central city living and the challenges involved in supplying suitable housing and amenities at higher densities. The level of social inequality in the city poses greater complications than elsewhere.

Keywords: Population densification, sustainable cities, social inequality, Cape Town central city.

1. Introduction

Efforts to raise urban population densities are growing in many parts of the world (Newton, 2010; Ng, 2010). This is related to widespread claims that a more compact urban form can make more efficient and intensive use of urban infrastructure and reduce the carbon impact of car travel (Jenks et al, 1996; Urban Task Force, 1999, 2005; Willis, 2008; Newton, 2008; Howley et al, 2009; for more sceptical views, see Gordon, 2008; Whitehead, 2009). There are also broader arguments that higher urban densities can support more productive economies and more vibrant and inclusive communities by bringing people and firms into closer proximity, thereby improving the opportunities for social interaction and exchange of ideas (Storper and Venables, 2004; Parkinson et al, 2006; Carlino et al, 2007; World Bank, 2009).

In most cities with market-oriented economies the level of population density tends to decline with distance from the city centre (Clark, 1951; Muth, 1969; Bertaud and Malpezzi, 2003; Gordon, 2008). The standard explanation runs as follows. Transport costs limit how far people are willing to travel to work. They trade off living space against access to jobs and amenities. Housing densities rise closer to centres of activity because competition for land forces prices higher and encourages developers to economise on land. Higher income groups live further out because they can afford more land and to commute by car, except where lifestyle preferences differ or public housing policies interfere. Over time, the population density of the city core can fall as incomes rise and household size contracts.

South African cities are unusual in two respects (Bertaud, 2002; Bertaud and Malpezzi, 2003; SACN, 2006; Tonkin, 2008). First, their average population density is low compared with cities in other countries with similar incomes. Second, the density profile is inverted so that it rises with distance from the centre. This is related partly to the legacy of colonial and apartheid rule, and to subsequent difficulties in altering established urban development patterns (Dewar, 2000; Pillay et al, 2006; Harrison et al, 2008; Turok and Parnell, 2009). Yet, there are recent signs of renewed interest in counteracting the sprawling built form of Cape Town. Two different plans have sought to move

densification up the policy agenda, by establishing goals that appear to be very bold. One seeks to treble the central city population within ten years (Cape Town Partnership, 2008) and the other aims to double the average housing density of the city as a whole (City of Cape Town, 2009).

This paper provides a framework to investigate the issues involved in central city densification. Drawing on related research in other countries, I raise several considerations that have been neglected locally. Densification is a complex, multi-layered notion open to ambiguity and misinterpretation. Different types of density target have contradictory requirements and outcomes. To treble the central city population implies far-reaching socio-economic changes beyond building more apartment blocks and promoting infill. I also examine the rationale for raising densities, since this affects strategic dilemmas that need to be confronted. I argue that residential densification should be seen as a broad developmental issue and located within a city-wide and national context, rather than essentially a matter of physical investment and neighbourhood alteration. A density strategy should provide the means to shift the growth trajectory of a city in a more efficient, equitable and/or sustainable direction. The concerns raised in the paper are of course relevant to contexts beyond South Africa, especially where density plans have not delivered the outcomes expected (e.g. Unsworth, 2007; Howley et al, 2009; Ng, 2010).

2. Urban density in South Africa

Urban housing markets in South Africa were severely disrupted by colonial and apartheid restrictions on where people could live (SACN, 2004; Pillay et al, 2006; Naude, 2008; OECD, 2008). Dramatic examples were the forced removals of tens of thousands of non-whites living at high densities in central locations such as District Six (Cape Town) and Sophiatown (Johannesburg) to peripheral townships such as Mitchells Plain and Soweto. Strict residential controls also prevented black migrants to the cities from living close to employment centres, and buffer zones of unused land were created between racial communities to reinforce segregation.

Since the demise of Apartheid, state rules about the invasion of vacant land have generally prevented unlawful increases in inner city populations. Conflicts among the stakeholders and protracted legal disputes over land claims have delayed redevelopment of areas such as District Six (Le Grange and Mammon, 2010; Boraine, 2010). In other well-located areas of the city, land-use regulations and enshrined property rights have prevented the sub-division of large residential plots. Upper income groups in accessible inner suburbs have also resisted attempts to alter zoning schemes to build at higher densities. Most of the mass low cost housing built by the state has been on cheap land on or beyond the urban fringe (Department of Housing, 2004; Boraine et al, 2006; SACN, 2006; OECD, 2008; van Donk et al, 2008). The developers of higher income housing have continued to extend the suburbs in former 'white' parts of the city, adding to low density sprawl.

Consequently, the average population density of South African cities is low by international standards. Table 1 provides some evidence suggesting that it is less than half that of other middle and low income countries, and lower than the average of cities in high income countries. More detailed estimates of a smaller sample of 48 world cities by Bertaud and Malpezzi (2003) reinforce this finding. In fact Cape Town has the lowest density of any city in their sample outside the United States. The legacy of sprawling, fragmented, racially divided cities also explains why promoting more equitable, efficient and sustainable cities is an important national aspiration, but complicated for a variety of reasons.

{Table 1 around here}

Urban integration and densification have been identified as government objectives since 1994. For example, the 1994 Housing White Paper, 1995 Development Facilitation Act, 1997 Housing Act, 1997 Urban Development Framework and 1998 Local Government Act advocated higher densities for more efficient use of public infrastructure and socio-economic development (Tonkin, 2008). In Cape Town, the 2001 Metropolitan Spatial Development Framework suggested increasing densities along corridors and nodes to

contain suburban expansion and protect natural resources. The 2005 Western Cape Spatial Framework advocated raising the existing average density of 10-13 dwellings per hectare (dph) to a target of 25 dph. This is widely believed to the threshold for viable public transport (CTCC, 2009).

In practice, there has been little political appetite to go beyond these expressions of intent to pursue densification more actively (Dewar, 2000; SACN, 2006; Harrison et al, 2008; OECD, 2008; Turok and Parnell, 2009). Such ideas have been unpopular with ratepayers and resisted by private developers and their financiers (Goven, 2010; Swilling 2010). In the absence of countervailing pressures for more contained and integrated urban development, decision-makers have considered matters of urban form and spatial structure too complex and too sensitive. They have been relegated below the maintenance of existing systems and the delivery of more housing and related services, almost wherever the location and whatever the form. It is "so much easier just to respond to development applications rather than put in the extra energy to design positive futures" (Swilling 2010, p.235).

Two recent spatial plans in Cape Town indicate new interest in density, with potentially significant practical consequences. One is a draft Central City Development Strategy led by the influential Cape Town Partnership (2008) comprising major public and private stakeholders. Its main goal is to boost the central area population by 100,000 within 10 years. This means almost trebling the number of existing residents from 55,000. The central city covers a large area including the CBD, Waterfront and surrounding districts from Green Point in the West to Woodstock in the East. Local neighbourhoods vary from prosperous to run-down. The area generates 40% of business turnover in the city and is the destination for 200,000 daily commuters, two-thirds of whom travel by private car (Boraine, 2010). The likelihood of gridlock on the main highways might be averted if more commuters lived in the city core. The Central City Strategy is best regarded as a statement of vision and aspiration, rather than a concrete plan. Most of its proposals (see Figure 1) are illustrative and designed to capture the imagination, rather than to set out a detailed programme of action.

{Figure 1 around here}

The second document is a draft Densification Strategy produced by the Spatial Planning and Urban Design Department of the City Council (CTCC, 2009). It starts by recognising that the physical extent (land area) of the city has increased by more than 200% over the last 30 years, while the population has increased by 125%. Consequently the average population density has fallen from 52 persons per hectare to 39 (CTCC, 2009). The document then explores different forms of building that deliver higher densities and outlines major considerations affecting appropriate density levels in different kinds of location across the city. Several potential policy mechanisms are mentioned, including changes in land-use and building regulations, a tougher urban containment policy and stronger incentives to developers (such as tax rebates).

The draft plan is more detailed and technical than the Central City Strategy, but also more tentative in proposing a "middle path" of densification to be pursued as long as this does not "negatively impact on built and natural resources" (CTCC, 2009, p.2). In addition, it reiterates the provincial target density of 25 dph, but with no mention of a timescale. The cautious tone partly reflects the difficulties senior officials had in gaining approval from council politicians to develop the plan and release it for public consultation (personal communication).

3. Defining density

Densification efforts often generate adverse reactions because density is equated with overcrowded tower blocks or noisy tenements. Communities fear the impact of high rise buildings and migrant populations on their neighbourhood character, and the extra pressure on local services. The media fuels fears with images of poor quality, insecure environments in a few notorious inner city areas. Yet density does not have to mean tall structures and congested streets. It could be communicated less as an end in itself, and more as a means towards wider ends, with benefits of convenience, connectivity and social vitality. With sensitive urban planning and management, there is growing evidence

that density could improve housing choices, amenities, employment and public services (Tan and Klaasen, 2007; Tonkin, 2008; Howley et al, 2009; Newton, 2010; Ng, 2010).

Density is essentially the product of two elements: (i) physical structures (the supply of housing) and (ii) the actual resident population (reflecting the demand from people to live there) (Whitehead, 2009). The former is usually measured by the number of dwellings per hectare, although this neglects their size and the number of habitable rooms, which also influence density. For example, the City of Cape Town's density target of 25 dph treats a five bedroom house the same as a studio flat. The actual resident population is typically measured by the number of people per hectare.

Physical density gets almost all the attention, especially from urban planners who have some influence over new development. This is patently true of both Cape Town plans. However, the real objective is to raise the actual population density. The relationship between them is not static but varies with household size and composition, which evolve over time in response to changes in income, stage in the life cycle, and social norms. As people's income rises, they typically aspire to more living space, so the density of existing buildings and neighbourhoods tends to decline. A fall in household size (through delayed marriage, higher separation rates or falling birth rates) also lowers population densities.

The relationship between planned and actual densities is further complicated because new buildings are a small fraction of the existing urban fabric (Gordon, 2008; Whitehead, 2009). Their influence on the average density of an area is at the margin. Existing densities also influence the new patterns of occupation (who moves into the new housing) through the character of the area, the cost of housing, and the quality of local schools and amenities. Existing communities may also influence the form of new development directly through political advocacy if they oppose higher densities. All this makes it more difficult to achieve the step change in density envisaged by both documents.

An exception is where large sites are available for (re)development that can make a big impact on their own. Public ownership can avoid speculation and market processes causing delays and inhibiting careful density planning. Physical separation from existing built-up areas may also reduce community opposition. There are many examples in central Cape Town of major vacant sites owned by state entities and with huge development potential, such as Culemborg. However,

> "the most serious challenge for the central city is that the department of public works (national and provincial) and state-owned enterprises like Transnet, Metrorail and Eskom have worked independently, often ignoring requests to engage strategically in a developmental process with other stakeholders … the minister for public works has estimated that the properties owned by public works alone in the city centre could be worth R45 billion (about $9bn)" (Swilling, 2010, p.238).

Consideration of new schemes should not deflect attention from the role of older neighbourhoods. Many have scope for 'incremental densification' (CTCC, 2009) through sub-dividing properties, building extensions and converting lofts, basements or out-buildings. A blunt dph density target has no bearing on this process, even though it can boost actual population densities. Higher energy and environmental standards can be incorporated concurrently through building upgrading and adaptation ('retrofitting'). Significant economic opportunities may arise from the renewal and refurbishment work, recycling old materials and producing new energy-saving equipment.

The principle of intensification can go beyond individual initiatives by consolidating adjacent plots. This permits either infill development or the demolition of existing structures and redevelopment of higher density, multi-storey buildings. Redevelopment may allow for better integration into the existing urban fabric and transport infrastructure than piecemeal infill. It can permit cross-subsidisation of affordable housing and coherent improvements to water and waste treatment systems, local energy generation and the public realm. This can add considerable value to old and under-capitalised properties

(and create many jobs in the process) and is particularly appropriate along public transport corridors and around activity centres within inner-urban suburbs.

Newton (2010) describes the regeneration of ‘greyfield’ precincts, whereby tracts of about 20 or more contiguous, well-located but ageing properties are brought together and redeveloped in ways that are technologically and environmentally up-to-date. There are signs of it happening in selected Australian and Canadian cities, where the pressure of rapid population growth demands urgent urban innovation. South Africa’s population pressures, resource constraints and looming environmental concerns (DEAT, 2008), also warrant serious consideration of property consolidation and redevelopment in inner urban areas.

Residential densities may fall where low income households are replaced by higher income groups able to afford more space. Inner city gentrification is occurring in Cape Town’s Bo-Kaap and Woodstock districts (Pirie, 2007), and efforts to improve urban amenities and conserve historic buildings may unwittingly encourage it. Gentrification has been localised historically, but a concerted central city upgrading policy that ignores the affordability issue could extend and accelerate the process, displacing poorer residents and marginal firms.

A single density target is unhelpful since different levels are appropriate in different parts of the city, depending on their access to jobs and amenities, transport connections, land values and the conservation potential of existing buildings. Density plans need to give careful consideration to the varied potential of different districts. This is recognised in both Cape Town plans, but not followed through consistently. In some districts, a third dimension of ‘job density’ is also significant, indicating concentrated economic activity. Some employment uses are compatible with residential uses, but others create noise or operate at anti-social hours. There may be a special case for protecting selected industrial areas from residential redevelopment because of the scarcity of manual jobs and the importance of proximity to less-skilled workers.

4. Approaches to densification

There are essentially three approaches to densification: (i) through state-driven procedures - such as acquiring and making land available for development, or directly providing new low income housing, (ii) through state stimuli to market producers - using incentives or regulations to encourage new housing developers to build at higher densities, and (iii) through fiscal measures to influence household preferences and location choices. For example, detached houses can be taxed more heavily than flats, or the costs of private car use can be increased through parking fees, fuel duties or road user charges. These may encourage more intense use of the existing central city housing stock.

All three approaches may need to be employed to shift prevailing development patterns and household behaviour in ways that are enduring. This means ensuring that public investment plans, incentives and controls are properly aligned and mutually supportive. The lack of consistency in the spatial programmes and policy instruments of different parts of the South African government is a major weakness of current arrangements (Boraine et al, 2006; SACN, 2006; Harrison et al, 2008), illustrated by the earlier quotation about public land ownership.

Residential densities can also increase through unlawful invasion of vacant and under-used land and buildings. This is the quickest route to higher densities, but there may be unintended effects in terms of insecurity, instability and inadequate infrastructure. Most South African cities possess some overcrowded buildings in a poor state, and there are many informal settlements with similar symptoms of poverty and destitution. Densities in Cape Town's shack settlements vary between 100-150 persons per hectare on average, compared with 45 in the more formal townships, and 4-12 in the former white suburbs (CTCC, 2009). There may be a case on environmental grounds for reducing densities in the informal areas in order to improve public health and resilience to fire and other disasters. The introduction of a 'density ceiling' guideline might be worth considering to raise awareness of the dangers of overcrowding and to encourage constructive solutions.

5. The rationale for densification

There are different reasons for raising density levels, with some tensions and trade-offs between them. This makes it important to clarify at the outset the fundamental purpose in order to set priorities accordingly. The two Cape Town plans identify the same six reasons for higher densities: lower resource consumption, viable public transport, more equitable access to opportunities, greater economic efficiency, improved housing choice and more liveable and safer places. This is a very ambitious and diverse set of objectives, risking some loss of clarity. Each has rather different practical implications for density policy, which neither plan seems to recognise. Instead they conflate them by assuming that a single solution is possible.

Standing back, the case for higher densities revolves around three basic arguments. The first relates to the creation of a city which will be more sustainable into the future – environmentally and financially. It is increasingly accepted that low density sprawl imposes high environmental costs in energy consumption and carbon emissions from private transport (Newton, 2010; Ng, 2010). “Cape Town’s ecological footprint (4.28 hectares per capita) has become so large that today it takes a land mass equal to the size of Greece to provide its inputs and process its waste” (OECD, 2008, p.17). Sprawl also worsens air pollution from car exhaust fumes and imposes extra capital costs through the provision of bulk infrastructure such as roads, water, sewers and storm water drainage. Long distance commuting adds to congestion on the roads and damages productivity.

Higher density development could reduce the rate at which peripheral land with agricultural, biodiversity and mineral potential is consumed. It could also reduce the average level of car dependency and make more efficient use of existing infrastructure. Renewing the oldest urban fabric could allow modern energy, water and waste treatment systems to be installed. Public transport, open spaces and arrangements for walking and cycling could be improved. A larger resident population would increase demand for retailing, bars, restaurants and consumer services, and make new and enhanced arts, cultural, educational, sports and entertainment venues more viable. Improved assets of this kind would strengthen the buzz of central Cape Town and reinforce its position as a

magnet for tourists, visitors, conferences and other events. The current transient population of commuters inhibits a fully-developed evening and weekend economy.

A second argument is that higher economic densities promote productive efficiency and growth through positive externalities or 'agglomeration economies'. There is mounting evidence that large concentrations of firms, customers, suppliers and competitors enhance flexibility, productivity and innovation (Rosenthal and Strange, 2004; Storper and Venables, 2004; Carlino et al, 2007; World Bank, 2009). Superior flows of information foster learning, creativity, improvisation and adaptation, resulting in more valuable goods and services. There is nowhere in the Western Cape to rival the city centre in terms of its economic scale and diversity, although there are dispersal pressures arising from traffic congestion and property costs (Pirie, 2007). Cape Town's "strong spatial fragmentation … is not conducive to inter-firm networks and urbanisation economies" (OECD, 2008, p.16).

The third argument is that a higher density central city is important for social inclusion and integration. It is a unique location of deep historic significance at the hub of the radial transport network, with a sizeable share of all jobs in the city. Weaker groups in the labour market who move in will improve their access to employment and training opportunities (Naude, 2008; OECD, 2008). Those in employment will save considerable financial and personal costs of long-distance commuting. A culturally diverse central city with a lively public realm and shared services could function as a model of tolerance, understanding and trust across the city, showing how social cohesion and a common sense of belonging can develop when people from different backgrounds mix successfully.

The first argument tends to imply that the principal target of densification is middle- to high-income groups working in the city centre who would otherwise live in the outer suburbs. They offer the biggest gains by cutting car-based commuting and economising on peripheral land. They are likely to demand generous space standards in their homes, well-designed and secure surroundings, and attractive public spaces nearby. High quality

schools, health centres, shops and other services may also be required, depending on their age and household composition.

The second argument implies that the densification should be driven by economic considerations. The city centre is a special place for activities relying on proximity and face-to-face contact. The priority is to attract, retain and nurture enterprises that will benefit most from a central location. This means making appropriate premises, infrastructure and support services available for higher value, strategic functions (such as head offices) and small/medium enterprises in creative sectors such as design, ICT, media and music. An expansion of higher education, research, professional services and cultural institutions could strengthen the environment for business formation, innovation and development.

The priority for the third argument is to accommodate low income groups. Affordability is the overriding consideration, implying different space standards and levels of design and maintenance of the built environment compared with higher-income residents. For example, walk-up flats of 3-4 storeys offer better value for money than taller structures served by lifts and requiring more substantial foundations and energy inputs (Tonkin, 2008). There is likely to be greater need for subsidised provision of schools, health centres and community facilities.

These distinctions are presented rather starkly. The challenge is to devise ways to balance and combine the objectives in practice. Integration is vital for a density strategy committed to transforming the status quo. The mixture will differ in different places, reflecting their distinct potential. Nevertheless, there are some dilemmas and inconsistencies which will not disappear. They need to be brought to the fore and reconciled explicitly. They include tensions between the quality and cost of buildings, exclusionary and inclusionary urban design, and residential and employment uses of property. Different priorities will also imply different responsibilities and costs for the public and private sectors.

The task of promoting residential densification can be explored in more detail from two broad perspectives: the desire of people to live in the city centre and the supply of property to accommodate them. Both Cape Town strategies adopt the birds-eye view of the planner in assuming that there is no constraint on demand for central city living. The approach appears to be 'if houses are built, people will come', without questioning which people will come and in what numbers. All the obstacles are assumed to lie on the supply side, so the challenge is to build more homes at higher densities. It is important, therefore, that the issue of demand is examined more closely.

6. The demand for city living

At the heart of both plans are unexplored questions about who the central city is for and who might want to live there – the composition of the 100,000 additional residents. This is an outstanding issue that can't be deferred because of the wide-ranging implications for density planning and service provision. Household income is a key dimension – effective demand (backed by the ability to pay the requisite costs) is more significant than a general wish to live in the central city. Age and household structure are two other vital elements.

Little is known about the age, income and household make-up of the current population of the area, and the trade-offs they make between space, location and access to jobs and amenities. Even less is known about the preferences of possible incomers and where they might come from. A better understanding of how the central city functions in the wider metropolitan housing market would help to estimate the potential for growth and the sources of that growth, and therefore the actual densities that might be achieved.

Groups vary in their housing requirements and expectations of local services. Central cities world-wide house disproportionate numbers of students, young working couples, older single people and migrant populations (Nathan and Urwin, 2005). They attach greater importance to access to centrally-located jobs, universities, amenities and opportunities to socialise than to suburban lifestyles. Yet, as people's incomes rise and they have children, it is common for adults in their 30s and 40s to move to the suburbs in

search of more internal space, outside gardens, better schools, greater security and access to the countryside and natural amenities (Muth, 1969; Whitehead, 2009). So city centre living may be quite a short-term experience for many young people, and more a way of living than a place to live (Nathan and Urwin, 2005).

If the city centre is to retain some of the families that would otherwise leave in order to stem sprawl and long distance commuting, their demands for space and flexibility to cope with additional children will need to be satisfied. Casual observation and international experience suggest that it may be easier to attract students, single adults and recent migrants, who have restricted budgets and are more tolerant of living in small flats. However, the benefits for environmental sustainability from accommodating these groups will be more limited, since their alternative is not a suburban house with a pool and car-based commuting.

Another possibility is that many of the new dwellings are bought as second homes for weekday living by people whose main houses are in the outlying suburbs and towns, or even as holiday homes and investments by people living elsewhere in the country or abroad. These outcomes would be more likely if densification was driven by private developers with little consideration to investment in public services, amenities and affordable housing (Unsworth, 2007). Central Cape Town's international profile and reputation makes this a plausible scenario here. It would be a perverse effect of encouraging more house-building without considering the source of demand.

The central city is relatively costly for low income groups because the value of the land is reflected in property prices and rents. This is also evident in the price of shops, entertainment and some other services. The Central City plan aspires to at least 20% affordable housing in the overall mix, cross-subsidised from higher income development and the cheap sale of public land. This is laudable, but 'affordability' is not defined and there are limits to what is feasible, especially on complex sites and during a downturn. Developers forced to pay for affordable housing will also be less willing to share the infrastructure costs, thereby burdening the public sector. Research elsewhere suggests

that volume house-builders remain deeply wedded to greenfield sites and struggle with the creative challenges required of brownfield development (Adams and Watkins, 2002).

Prior experience of city council budget deliberations suggests that politicians will find it difficult to justify the additional subsidies required for multi-storey housing and new public services for inner city residents who don't yet exist, in the face of pressure to reduce the large backlogs in existing poor communities across the city. A detailed technical case will have to be made, incorporating the long-term, city-wide costs and benefits of different development scenarios.

7. The supply of suitable housing and amenities

There is more awareness of some of the supply side obstacles to densification, although much analysis is still required to establish their significance. This is a wide-ranging agenda that can be organised into six categories.

First, the capacity of infrastructure to accommodate another 100,000 people is vital to above-the-ground activity, including water, sanitation, power and telecommunications. A step change in demand for services will require substantial investment in additional bulk capacity. Re-engineering the city centre will be difficult because of the disruption and space constraints for such facilities. This magnitude of infrastructure investment will also be subject to serious public resource constraints. Affording priority to the central city will be difficult politically when basic needs are so substantial elsewhere. The city council has significant borrowing powers and a strong credit rating, so it could perhaps justify some of this investment as additional and geared to expanding the city's tax base, enabling cost recovery as the economy grows. A more considered approach to the regulation of land (re)development could also enable it to capture a share of the escalation in land values and leverage private finance on the basis of the likely future returns.

Second, bringing forward a supply of serviced sites for development is essential for the scale of growth envisaged. Many vacant sites exist, but their condition, ownership status and capacity have not been examined systematically. It has proved difficult over the last

decade to secure well-located land for affordable housing (OECD, 2008; Tonkin, 2008). The obstacles include reluctant owners, disputed land claims, biodiversity restrictions, physical contamination and dereliction. National support is required to unlock barriers like the requirement that public bodies sell surplus land to the highest bidder. Stronger powers for local government to acquire under-used sites and prepare them for development are also important given market failures and enshrined property rights. Creating a land renewal agency in the city with a remit to intervene pro-actively and facilitate land swaps to overcome fragmented ownership and other obstacles would accelerate the process. Such arrangements can be more or less self-financing if land is acquired at existing use value and sold at a higher price after servicing and/or redevelopment.

Third, the design of the new housing will be critical to the plan's success. If the flats are too small and inflexible, and outside spaces are neglected, the central city's diversity could be compromised. Taller buildings raise densities but are more costly to construct and maintain, undermining affordability. Converting old buildings to housing presents its own design and funding challenges. New planning powers are needed to consolidate separate properties in low density inner areas and allow more intense and integrated redevelopment. Cape Town's high level of social inequality poses formidable challenges and calls for real creativity and imagination. There may be lessons from cities such as Johannesburg which have delivered high density housing for low income groups (Tonkin, 2008). Extensive public consultation will also be important to build support and legitimacy.

Fourth, combining different forms of housing tenure that mix age groups, cultures and family types is one way to foster social integration. Careful planning and financing are required to support inclusionary housing and avoid obvious segregation by income. Public bodies need to demand more of developers and apply current housing subsidies more flexibly to enable dense, diverse neighbourhoods to be created. There are many positive examples of cross-subsidisation and social interaction within mixed tenure communities in European cities (Bailey and Manzi, 2008). High quality design and

careful management of shared spaces seem to be important ingredients of success. Community involvement can help to identify people's concerns and promote mutual understanding and respect.

Fifth, higher densities and less living space are more likely to be tolerated if there are attractive external spaces, good public services and recreational amenities. These are also vital arenas for social interaction and engagement, so open access and inclusivity are important. Flexibility is required in applying public service standards such as school playgrounds and car parking, bearing in mind the shortage of land and the need for buildings that contain mixed uses.

Finally, the central city plan may fail without wider changes in policy and practice. Developers and financiers generally prefer simpler greenfield sites (Swilling, 2010). They are even less likely to develop in the inner city if the density plan imposes burdens that don't apply elsewhere. Consequently, it should be conceived as part of a broader effort to reorientate the private property market and encourage innovation. A useful starting point would be a stronger city-wide plan supporting 'smart growth' (higher densities and mixed uses) in key locations across the city, to limit sprawl, and to reinforce the central city's strategic position with a hands-on, developmental role for the public sector. Nothing less than a paradigm shift may be required for urban designers, architects, engineers, financiers and developers to accept the primacy of brownfield and greyfield development, and to adapt their methods accordingly (Adams and Watkins, 2002).

8. Conclusion and implications

Cities face complex challenges in seeking to raise their population densities. They go well beyond the technical issues involved in building more homes because the population distribution is also influenced by household preferences, incomes, size and the operation of local housing markets. Densification is particularly difficult for cities like Cape Town because of the level of social inequality and the entrenched patterns of dispersed development. Clarifying the purpose of density is all the more important in order to set priorities accordingly.

The focus of central Cape Town's density plan ought to follow from the main functions envisaged for the central city in relation to the wider metropolis – a vibrant place to live and work, a major source of jobs, a unique arena for social interaction, a centre for advanced learning, and somewhere with a distinctive cultural heritage and natural environment. There are tensions between them requiring further research and public discussion to establish the appropriate balance and combination. Some imply a focus on attracting middle- and high-income families with a choice of where to live, others on accommodating low-income groups without much choice, or providing flexible space for business and related activities. These differences need to be understood and aired if there is to be sensible public debate about what is desirable, affordable and fair.

It is instructive to consider the challenge of densification from two perspectives: demand to live in the central city and the supply of suitable housing and related services. A key consideration is who the central city is for, and to what extent public bodies are willing invest in and regulate the built environment to create dense mixed communities, where commercial pressures may favour up-market residential and commercial development. Assuming that social diversity is an objective, there are difficult decisions about the composition of different housing tenures, types, sizes and qualities to suit different groups. Creativity and innovation are required in urban design, development finance and the management of buildings and their surroundings. To create places where people with a choice want to live, and where people without much choice can also be accommodated requires new and improved services, amenities and public spaces appropriate to their needs and expectations. A participatory planning approach would help to foster cooperative relationships and create more stable and cohesive communities.

There are substantial gaps in knowledge that could impede strategic decisions. First, a better understanding is needed of the tensions between the main objectives of densification, drawing on local evidence and experience elsewhere. Second, more nuanced density targets are required, including ceilings for overcrowded areas and minima for new suburban development. They might include the number of rooms and

outside space requirements, and the balance between brownfield and greenfield land. Third, more knowledge is needed about current housing dynamics, including how existing inner city neighbourhoods function in the wider housing market, where there are signs of incremental densification and gentrification, and what the scope is to intervene in prevailing patterns. Fourth, household attitudes and preferences are poorly understood, including the trade-offs households make between living space, access to jobs and amenities, and housing costs: is it realistic to expect families in the central city; and what are the parameters of affordable housing for low income groups? Fifth, much uncertainty surrounds the extent and condition of vacant and under-used land, its ownership, infrastructure capacity and obstacles to more intensive development, including innovative methods of financing long-term infrastructure.

This is not to suggest that density planning and investment needs to be frozen until there is a full understanding of all these dimensions. No city can afford this luxury of postponing decisions until there is a complete evidence base. Action to bring about development is too urgent to be held up by research. Planning is always imperfect, but it is likely to be enhanced if informed by a parallel stream of analysis and reflection.

Acknowledgements

The paper originated as a short discussion document prepared while I was Mellon Fellow at the African Centre for Cities, University of Cape Town. I would like to thank Kathleen Evans, Iain Low, Ken Sinclair-Smith, Warren Smit, Cathy Stone, Steve Tiesdell, Norah Walker, Andrew Boraine, Ismail Farouk and Zayd Minty for helpful conversations on the subject, and Peter Wilkinson, Alison Todes, Alan Mabin and two anonymous referees for comments on a draft version of the paper.

References

Adams, D. and Watkins, C. (2002) *Greenfields, Brownfields and Housing Development,* Oxford: Blackwell.

Bailey, N. and Manzi, T. (2008) *Developing and Sustaining Mixed Tenure Housing Developments,* York: Joseph Rowntree Foundation.

Bertaud, A. (2002) *The Spatial Organisation of Cities: Deliberate Outcome or Unforeseen Consequence?* Washington: World Bank. see www.alain-bertaud.com (accessed 22 July 2010)

Bertaud, A. and Malpezzi, S. (2003) *The Spatial Distribution of Population in 48 World Cities: Implications for Economies in Transition*, see www.alain-bertaud.com (accessed 22 July 2010)

Boraine, A. (2010) 'Central city development strategy', in Pieterse, E. (ed) *Counter-Currents: Experiments in Sustainability in the Cape Town Region*, Cape Town: Jacana Media.

Boraine, A. et al (2006) 'The state of South African cities a decade after democracy', *Urban Studies,* 43(2) pp. 259-284.

Cape Town Partnership (2008) *Central City Development Strategy,* Cape Town: Cape Town Partnership and City of Cape Town. www.capetownpartnership.co.za (accessed 28 July 2010)

Carlino, G.A., Chatterjee, S. and Hunt, R.M. (2007) 'Urban density and the rate of invention', *Journal of Urban Economics*, 61(3), pp.389-419.

City of Cape Town (2009) *Cape Town Densification Strategy: Technical Report*, Cape Town: City of Cape Town. www.capetown.gov.za/en/sdf (accessed 28 July 2010)

Clark, C. (1951) 'Urban population densities', *Journal of the Royal Statistical Society,* (Series A) 114, pp. 490-496.

Demographia (2009) *Demographia World Urban Areas and Population Projections*, 5th Edition www.demographia.com/db-worldua.pdf (accessed 22 February 2010)

Department of Environmental Affairs and Tourism (2008) *National Framework for Sustainable Development in South Africa,* Pretoria.

Department of Housing (2004) *Breaking New Ground*, Pretoria, SA Department of Housing.

Dewar, D. (2000) 'The relevance of the compact city approach: The management of urban growth in South African cities', in Jenks, M. and Burgess, R. (Eds) *Compact Cities: Sustainable Urban Forms for Developing Countries*, London: Spon Press.

Gordon, I. (2008) 'Energy and the built environment', *Energy Policy*, 36, pp.4652-4656.

Goven, G. (2010) 'Kosovo Informal Settlement Upgrade', in Pieterse, E. (ed) *Counter-Currents: Experiments in Sustainability in the Cape Town Region*, Cape Town: Jacana Media.

Harrison, P., Todes, A. and Watson, V. (2008) *Planning and Transformation: Learning from the Post-Apartheid Experience*, Abingdon: Routledge.

Howley, P., Scott, M. and Redmond, D. (2009) 'Sustainability versus liveability: an investigation of urban satisfaction', *Journal of Environmental Planning and Management*, 52(6), pp.847-864.

Jenks, M., Burton, E. and Williams, K. (eds) (1996) *The Compact City: A Sustainable Urban Form?* London: Spon.

Le Grange, L. and Mammon, N. (2010) 'District Six development framework', in Pieterse, E. (ed) *Counter-Currents: Experiments in Sustainability in the Cape Town Region*, Cape Town: Jacana Media.

Muth, R. (1969) *Cities and Housing*, Chicago: University of Chicago.

Nathan, M. and Urwin, C. (2005) *City People: City Centre Living in the UK*, London: IPPR Centre for Cities.

Naude, W. (2008) 'Is there a spatial mismatch in South Africa's metropolitan labour market?' *Cities*, 25, pp.268-276.

Newton, P.W. (2008) (ed.) *Transitions: Pathways Towards Sustainable Urban Development in Australia*. Dordrecht: Springer.

Newton, P.W. (2010) 'Beyond greenfield and brownfield: the challenge of regenerating Australia's greyfield suburbs', *Built Environment*, 36(1), pp.81-104.

Ng, E. (ed.) (2010) *Designing High Density Cities for Social and Environmental Sustainability*, London: Earthscan.

OECD (2008) *Territorial Review: Cape Town*, Paris: OECD.

Parkinson, M., Champion, T., Evans, R. et al (2006) *State of the English Cities*, London: ODPM.

Pillay, U., Tomlinson, R. and du Toit, J. (eds) (2006) *Democracy and Delivery: Urban Policy in South Africa*, Cape Town: HSRC Press.

Pirie, G. (2007) ‘Reanimating a Comatose Goddess: Reconfiguring Central Cape Town, *Urban Forum,* 18, pp.125-151.

Rosenthal, S. and Strange, W. (2004) ‘Evidence on the nature and sources of agglomeration economies’, in Henderson, V. and Thisse, J. (eds) *Handbook of Urban and Regional Economics*, vol. 4, Amsterdam: North Holland, pp. 2119-2171.

South African Cities Network (SACN) (2004) *State of the Cities Report 2004,* Johannesburg: SACN.

South African Cities Network (SACN) (2006) *State of the Cities Report 2006,* Johannesburg: SACN.

Storper, M. and Venables, A. (2004) ‘Buzz: face-to-face contact and the urban economy’, *Journal of Economic Geography,* 4(4), pp.351-370.

Swilling, M. (2010) ‘Dealing with sustainability’, in Pieterse, E. (ed) *Counter-Currents: Experiments in Sustainability in the Cape Town Region,* Cape Town: Jacana Media.

Tan, W. and Klaasen, I. (2007) ‘Exploring 24/7 environments’ *Town Planning Review,* 78(6), pp.699-723.

Tonkin, A. (2008) *Sustainable Medium Density Housing: A Resource Book,* Cape Town: Development Action Group.

Turok, I. (2001) ‘Persistent polarisation post-apartheid? Progress towards urban integration in Cape Town’, *Urban Studies*, 38(13), pp.2349-2377.

Turok, I. and Parnell, S. (2009) ‘Reshaping cities, rebuilding nations: The role of national urban policies’, *Urban Forum.* 20(2), pp.157-174.

Unsworth, R. (2007) ‘City living and sustainable development’ *Town Planning Review,* 78(6), pp.725-747.

Urban Task Force (1999) *Towards an Urban Renaissance: Final Report,* London: Stationery Office.

Urban Task Force (2005) *Towards a Strong Urban Renaissance*, London: Urban Task Force.

van Donk, M., Swilling, M., Pieterse, E. and Parnell, S. (eds) (2008) *Consolidating Developmental Local Government: Lessons from the South African Experience*, Cape Town: UCT Press.

Whitehead, C. (2009) *The Density Debate: A Personal View*, London: LSE.

Willis, R. (2008) *The Proximity Principle*, London: CPRE.

World Bank (2009) *Reshaping Economic Geography*, Washington: World Bank.